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**ROTEL**®

# Technical Manual

## STEREO CONTROL AMPLIFIER RC-2000

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Serial No. Beginning  
NB75369

THE ROTEL CO., LTD.

ROTEL ELECTRONICS CO., LTD.

ROTEL OF AMERICA, INC.

1-36-8 OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

2ND FLOOR, EVERGLORY BLDG., NO. 305, SECTION 3,  
NANKING E. ROAD, TAIPEI, TAIWAN, REPUBLIC OF CHINA

1055 SAW MILL RIVER ROAD, ARDSLEY, N.Y. 10502, U.S.A.

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# Technical Manual

## STEREO CONTROL AMPLIFIER

### RC-2000

70

Chassis Layout (Top View)

Chassis-Anordnung (Oberansicht)

Installation du châssis (vue de dessus)

Chassis Layout

Chassis-Anordn

Installation du c

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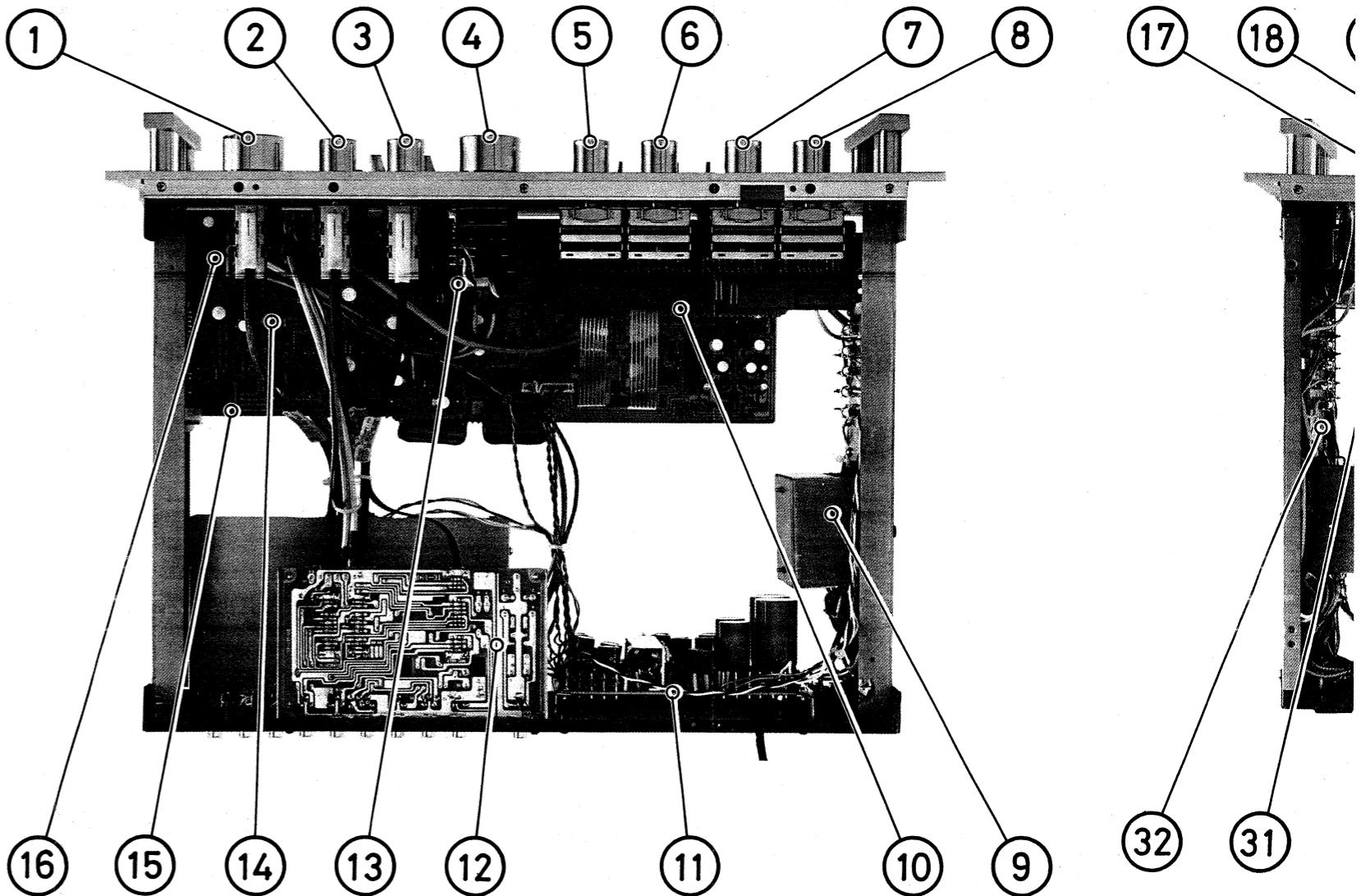
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1. FUNCTION SELECTOR	9. POWER TRANSFORMER
2. TAPE MONITOR SWITCH	10. TONE CONTROL PC BOARD (TC-144)
3. RECORDING SELECTOR	11. POWER SUPPLY PC BOARD (B-136)
4. VOLUME CONTROL	12. SWITCHES AND RELAY PC BOARD (TC-140)
5. TREBLE CONTROL, R-CH	13. VOLUME CONTROL PC BOARD (TC-139)
6. TREBLE CONTROL, L-CH	14. VR501, DIRECT PHONO AMP DC BALANCE ADJ, L-CH
7. BASS CONTROL, R-CH	15. FILTERS AMP PC BOARD (TC-141)
8. BASS CONTROL, L-CH	16. VR502, DIRECT PHONO AMP DC BALANCE ADJ, R-CH
	17. POWER SWITCH
	18. BASS TURNOVER
	19. TREBLE TURNOVER
	20. MUTING SWITCH
	21. BALANCE CONTROL
	22. MODE SWITCH
	23. ADDITIONAL CONTROL
	24. LOAD IMPEDANCE

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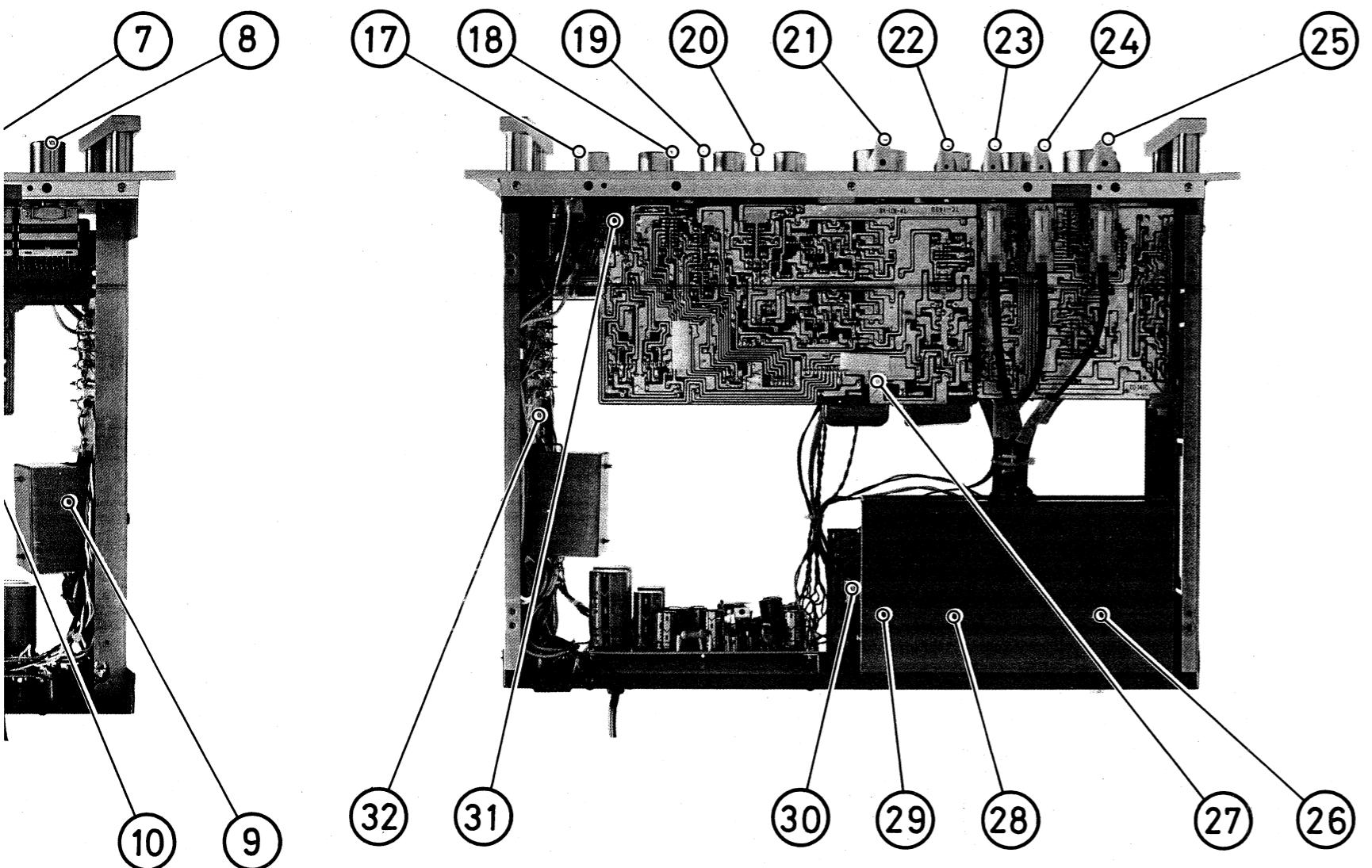
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2

## Chassis Layout (Bottom View)

## Chassis-Anordnung (Unteransicht)

## Installation du châssis (vue de dessous)



17. POWER SWITCH	25. PHONO SELECTOR
18. BASS TURNOVER SWITCH	26. MC HEAD AMP AND EQUALIZER PC BOARD (PR-111)
19. TREBLE TURNOVER SWITCH	27. TONE AMP PC BOARD (TC-143)
20. MUTING SWITCH	28. VR 101, PHONO AMP DC BALANCE ADJ, L-CH
21. BALANCE CONTROL	29. VR 102, PHONO AMP DC BALANCE ADJ, R-CH
22. MODE SWITCH	30. RY 301, MUTING RELAY
23. ADDITIONAL CAPACITANCE SWITCH	31. HEADPHONES JACK
24. LOAD IMPEDANCE SWITCH	32. FUSES PC BOARD (X-296)

## Adjustment

**Instruments:** Audio Generator, Oscilloscope, AC Voltmeter

First set the potentiometers and switches as follows:

Power, Muting, Loudness, Filters, Direct Phono and Recording Selector switches → OFF;  
Turnover switch → DEFEAT;  
Tape Monitor Switch → SOURCE;  
Function Selector → PHONO;  
Phono Selector → 1;  
Mode Switch → STEREO;  
Capacitance and Impedance Switches → mid-position;  
Balance, Bass and Treble controls → mid-position;  
Volume control → minimum

## Einstellung

**Instrumente:** Tongenerator, Oszilloskop, Wechselspannungs-Voltmeter

Zuerst stellen Sie die Potentiometer und Schalter wie folgt ein:

Netzschalter, Dämpfungsschalter, Loudness-Schalter, Filter-, Phono-Direkteingangs- und Aufnahmewahlschalter → OFF;  
Umkehrschalter → DEFEAT;  
Bandmonitorschalter → SOURCE;  
Eingangswähler → PHONO;  
Phonowähler → 1;  
Betriebsartenschalter → STEREO;  
Kapazitanz und Impedanzschalter → Mittelstellung;  
Balance-, Tiefen- und Höhenregler → Mittelstellung;  
Lautstärkeregler → Minimum

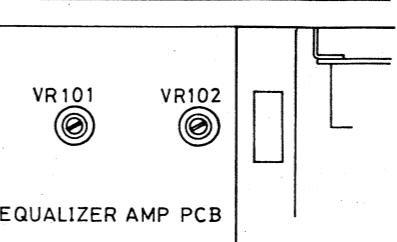
## Réglage

**Instruments:** Générateur d'audio-fréquences, oscilloscope, voltmètre à courant alternatif.

Régler tout d'abord les potentiomètres et commutateurs de la manière suivante:

Sélecteurs "Power", "Muting", "Loudness", "Filters", "Direct phono" et "Recording" sur OFF;  
Commutateur "Turnover" sur DEFEAT;  
Commutateur "Tape Monitor" sur SOURCE;  
Sélecteur de fonction sur PHONO;  
Sélecteur Phono sur 1;  
Commutateur de Mode sur STEREO;  
Commutateurs de capacité et d'impédance sur la position médiane;  
Commandes d'équilibrage, des graves et des aigües sur la position médiane;  
Commande du Volume sur minimum

### REAR PANEL



### CHASSIS BOTTOM VIEW (PORTION)

Fig. 1. Phono Amp DC Balance Adjustment

Abb. 1. Einstellung der Gleichstrombalance des Phonoverstärkers

Fig. 1. Réglage de l'équilibrage courant continu de l'ampli phono

### A. Phono Amplifier DC Balance Adjustment

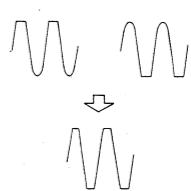
1. Connect AC Voltmeter and Oscilloscope to Tape Monitor Out jack. Connect Audio Generator to Phono-1 jack. Set Power switch to ON (allow 3 to 10 seconds before relay is activated).
2. Feed in 1,000Hz (sine wave) signal from Audio Generator, and gradually raise the input level until output waveform appears clipped on Oscilloscope connected to Tape Out. In this state, adjust potentiometer VR101 (VR102 for R-ch) on Equalizer PC board so that the upper and lower portions of wave are uniformly clipped.

### A. Einstellung der Gleichstrombalance des Phonoverstärkers

1. Schließen Sie das Wechselspannungs-Voltmeter und das Oszilloskop an die Bandmonitor-Ausgangsbuchse an. Schließen Sie den Tongenerator an die Buchse [Phono-1] an. Stellen Sie den Netzschalter auf ON (es dauert 3 bis 10 Sekunden bevor das Relais schaltet).
2. Führen Sie ein 1000 Hz Signal (Sinus) vom Tongenerator zu, und erhöhen Sie allmählich den Eingangspiegel, bis die Ausgangswellenform auf dem an die Bandausgangsbuchse angeschlossenen Oszilloskop abgeschnitten erscheint. Stellen Sie in diesem Zustand das Potentiometer VR101 (VR102 für den rechten Kanal) auf der gedruckten Schaltung des Entzerrers so ein, daß die obere und die untere Amplitude gleichförmig abgeschnitten sind.

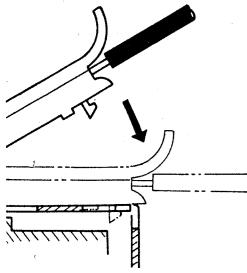
### A. Réglage de l'équilibrage courant continu de l'amplificateur Phono

1. Brancher le voltmètre à courant alternatif et l'oscilloscope à la prise "Tape Monitor Out". Brancher le générateur d'audio-fréquences à la prise "Phono-1". Placer l'interrupteur d'alimentation sur "ON" (attendre de 3 à 10 secondes que le relais soit mis en action).
2. Envoyer un signal de 1.000Hz (onde sinusoïdale) à partir du générateur d'audio-fréquences et augmenter graduellement le niveau d'entrée jusqu'à ce que la forme de l'onde de sortie soit écrétée sur l'oscilloscope raccordé à "Tape Out". Dans cet état, régler le potentiomètre VR101 (VR102 pour le canal droit) de la plaque du circuit de l'égaliseur de façon à ce que les parties inférieure et supérieure de l'onde soient écrétées uniformément.





de fil et de bloc de  
rs 3P et 6P. S'assurer  
lloyé convient bien au  
pareil.  
c la fente puis enfoncez  
er en place.



wire  
abels  
le fil

50mV/50kΩ  
50mV/50kΩ

5V  
5V  
0dB AVE  
.01%

(ref. preamp rated input)  
.3%

0Hz to 40,000Hz  
0dB  
Ω to 16Ω  
0dB

00mW/8Ω load

:S  
5dB, -5dB  
10dB, -10dB  
5dB, -5dB  
-10dB, -10dB

50Hz, 400Hz  
kHz, 2.5kHz  
8dB/+4dB  
2dB/oct  
2dB/oct  
-15dB±1dB  
dB±1dB

20V/60Hz, 220V/50Hz,  
40V/50Hz, or 100V,  
20V, 220V or 240V/  
0Hz or 60Hz (switchable)  
0W, Max.  
82(W)x148(H)x333(D)mm  
0kg  
subject to possible modifica-

## Repair Parts List

### Reparaturteilliste

### Liste des pièces de rechange

Schematic Location	Part No.	Description
<b>TRANSISTORS, DIODES AND IC'S</b>		
Q101, 102, 105 106, 111, 112 113, 114	301201180	2SC1844 (E) or (F)
Q103, 104, 107 108, 109, 110 115, 116	301001149	2SA991 (E) or (F)
Q117, 118, 121 122, 123, 124 131, 132, 509 510, 609, 610 805, 811	301201171	2SC1980 (S) or (T)
Q119, 120, 125 126, 501, 502 503, 504, 517 518, 521, 522 601, 602, 603 604	302001118	2SK136 (R) or (S)
Q127, 128, 129 130, 138, 505 506, 507, 508 605, 606, 607 608, 806, 812 813	301001145	2SA921 (S) or (T)
Q133, 134, 137 511, 512, 611 612	301201164	2SC1885 (R) or (S)
Q135, 136, 139 513, 514, 515 516, 519, 520 613, 614	301001142	2SA912 (R) or (S)
Q615, 616, 617 618	301201134	2SC1327 (S) or (T)
Q801	301201172	2SC1827 (Y)
Q802	301001156	2SA769 (Y)
Q803	301201150	2SC1567 (R) or (S)
Q804	301001135	2SA794 (R) or (S)
Q807	301201165	2SC1913 (Q) or (R)
Q808	301001143	2SA913 (Q) or (R)
Q809	301201186	2SC1509 (R) or (S)
Q810	301001155	2SA777 (R) or (S)
Q814	301001140	2SA684 (R) or (S)
D101, 102, 105 106, 503, 504 603, 604	300212002	KB-265, Varistor, (RED)
D103, 104, 107 108, 501, 502 601, 602, 804 807, 809	300212008	KB-165, Varistor, (YLW)
D301	300111010	1S2472
D801, 804	300919022	MI-152
D802, 805	300919023	MI-152R
D803	300313019	WZ-350, Zener Regulator, 35V, 0.5W
D806	300313013	WZ-120, Zener Regulator, 12V, 0.5W
D808	300919024	SR1K-4
D001	300414015	SEL-305GC, LED, Pilot Lamp
IC601, 602	303452166	TA7140P, Headphone Amp
<b>VARIABLE RESISTORS</b>		
VR101, 102	510502173	100B, Phono Amp DC Balance Adj
VR401	525121140	100KBTx2 plus 50KCx2, Volume Control

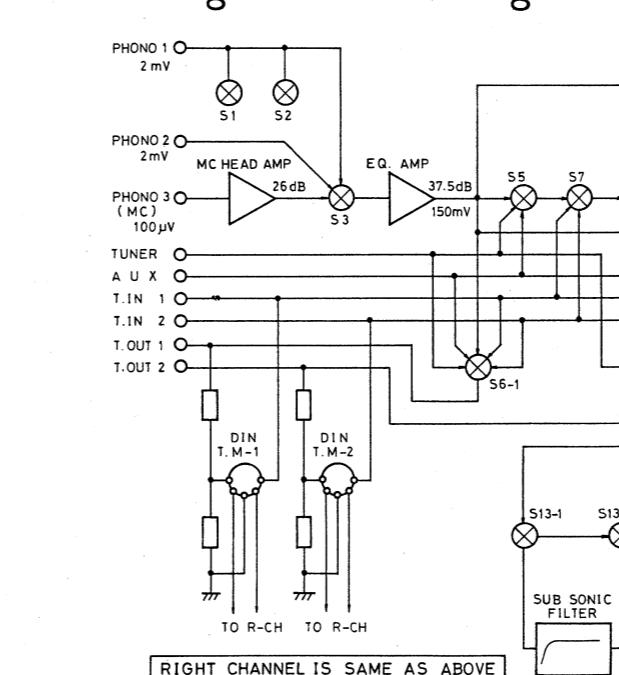
Schematic Location	Part No.	Description
<b>SWITCHES</b>		
VR402	525101143	100KBHx2, Balance Control
VR501, 502	510502175	330B, Direct Phono Amp DC Balance Adj
<b>OTHERS</b>		
S1, 2, 3	615212263	Add Capacitance Selector, Load Impedance Selector and Phono Selector
S4	614010130	Direct Phono
S5	615212264	Function Selector
S6	615212265	Recording Selector
S7	615212264	Tape Monitor
S8	614010131	Loudness
S9	601011335	Mode Selector
S10	611001270	Treble Turnover
S11	611001269	Bass Turnover
S12, 13 (1 Set)	614020423	Supersonic and Subsonic
S14	611001268	Muting
S15, 16, 17, 18	601011336	Bass, Treble Control
S19	611001271	Power (General)
	611001272	Power (Canadian Type)
RY301	240111242	Relay
T001	205001440	Power Transformer, (Multivoltage Type)
F901	206001440	Power Transformer, (220V/240V Type)
F902, 903	341221100	Fuse, 1A-3AG (Long), for 100V/120V Areas
F904, 905	341221050	Fuse, 0.5A-3AG (Long), for 220V/240V Areas
	345952050	Fuse, 500mAT (Midget), European Type
	341221050	Fuse, 0.5A-3AG (Long), Standard Type
	34525050	Fuse, 500mA (Midget), European Type
	341221050	Fuse, 0.5A-3AG (Long), Standard Type
	345952050	Fuse, 500mAT (Midget), European Type
	141510164	MC Head Amp and Equalizer PC Board Ass'y
	141810814	Power Supply PC Board Ass'y
	141710297	Filters Amp PC Board Ass'y
	141710296	Switches and Relay PC Board Ass'y
	141710299	Tone Amp PC Board Ass'y
	141710300	Tone Control PC Board Ass'y
	141710298	Volume Control PC Board Ass'y
	654101144	Remote Control Unit, 3P Switch
	654101145	Remote Control Unit, 6P Switch
	647110002	Wire Ass'y for 3P Remote Switch
	647110003	Wire Ass'y for 6P Remote Switch
	624206202	Pin Jack Board 2P, PHONO-3

Schematic Location	Part No.	Description
	624205204	Pin Jack Board 4P, PHONO-1 and 2
	624204202	Pin Jack Board 2P, OUTPUT
	624204204	Pin Jack Board 4P, TUNER, AUX, etc.
	625001114	DIN Socket, 5P
	648211141	AC Outlet
	626110028	Phone Jack
	648211121	Voltage Selector (not used on European type units)
	111911404	Front Panel Ass'y with- out Handles
	124011298	Bottom Cover
	138011294	Top Cover
	670101118	Handle
	770911216	Collar, Handle Mtg
	673402018	Foot
	116310235	Knob, Function, Volume
	116310236	Knob, Balance, Phono Selector
	116310237	Knob, Treble, Bass, etc.
	116310238	Knob, Mode, Load Impedance, etc.
	116310242	Knob, Turnover, Power, etc.
	116210046	Button, Filters, etc.
	762213006	Screw, ø3x6mm (Ni), Tap-tight, Oval Countersunk
	76223006	Screw, ø3x6mm (BLZ), Tap-tight, Oval Countersunk
	766213006	Screw, ø3x6mm (Ni), Tap-tight
	766223008	Screw, ø3x8mm (BLZ), Tap-tight
	766213010	Screw, ø3x10mm (Ni), Tap-tight
	766223012	Screw, ø3x12mm (BLZ), Tap-tight

Schematic Location	Part No.	Description
	765214008	Screw, ø4x8mm (Ni), Tap-tight, Binding Head
	765224008	Screw, ø4x8mm (BLZ), Tap-tight, Binding Head
	765224012	Screw, ø4x12mm (BLZ), Tap-tight, Binding Head
	725223008	Screw, ø3x8mm (BLZ), Tapping
	770911166	Screw, ø3x8mm (BLZ), Flat Head
	702213008	Screw, ø3x8mm (Ni), Oval Countersunk
	770911209	Cap Screw, 6x40mm, Handle Mtg
	770911209	Cap Screw, 6x40mm, Handle Mtg
	770911130	Screw, 3x9mm, LED PC Board Mtg
	770402205	Nut, M7, Hex
	770402206	Nut, M8, Hex
	770402207	Nut, M9, Hex
	770402209	Nut, M12, Hex
	770402201	Nut, M3, Hex
	770402204	Nut, M6, Hex
	770911144	Nut, M3, Square, Transistor Mtg
	770500002	Washer, ø4 (BLZ), Top Cover Mtg
	770500012	Spring Washer, ø6, Handle Mtg
	770500003	Washer, ø3 (Ni)
	770500010	Spring Washer, ø3
	770500006	Washer, ø7
	770500007	Washer, ø8
	770500008	Washer, ø9
	770500009	Washer, ø12
	770500014	Teethed Washer, ø3
	770911119	GND Terminal
	648211146	Fuse Clip, (Long Fuse)
	648211147	Fuse Clip, (Midget Fuse)
	992001111	Insulation Collar, Transistor Mtg

## Block Diagram

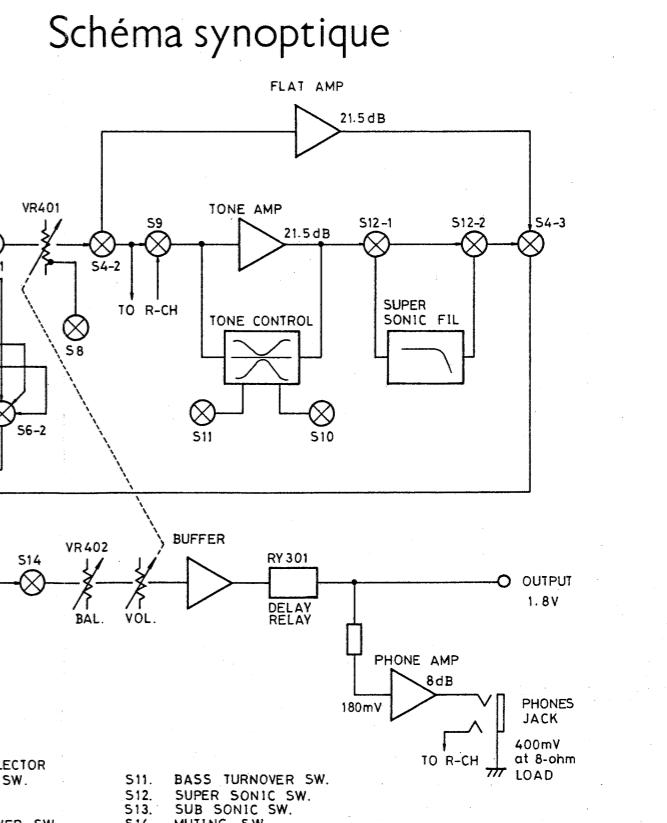
## Blockdiagramm



RIGHT CHANNEL IS SAME AS ABOVE

S1. ADDITIONAL CAPACITANCE SW.  
S2. INPUT IMPEDANCE SW.  
S3. PHONO SELECTOR  
S4. DIRECT PHONO SW.  
S5. FUNCTION SELECTOR

S6. RECORDING SELECTOR  
S7. TAPE MONITOR SW.  
S8. LOUDNESS SW.  
S9. MODE SW.  
S10. TREBLE TURNOVER SW.



## Schematic Diagram Schaltungsschema Diagramme schématique

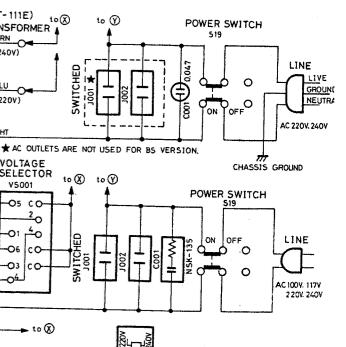
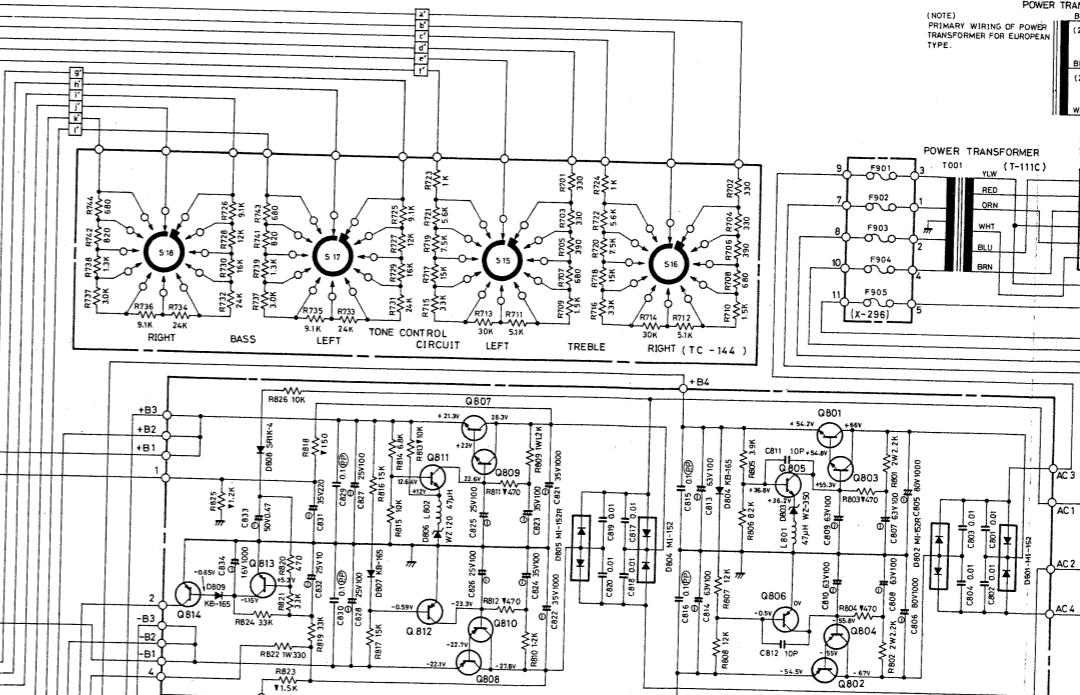
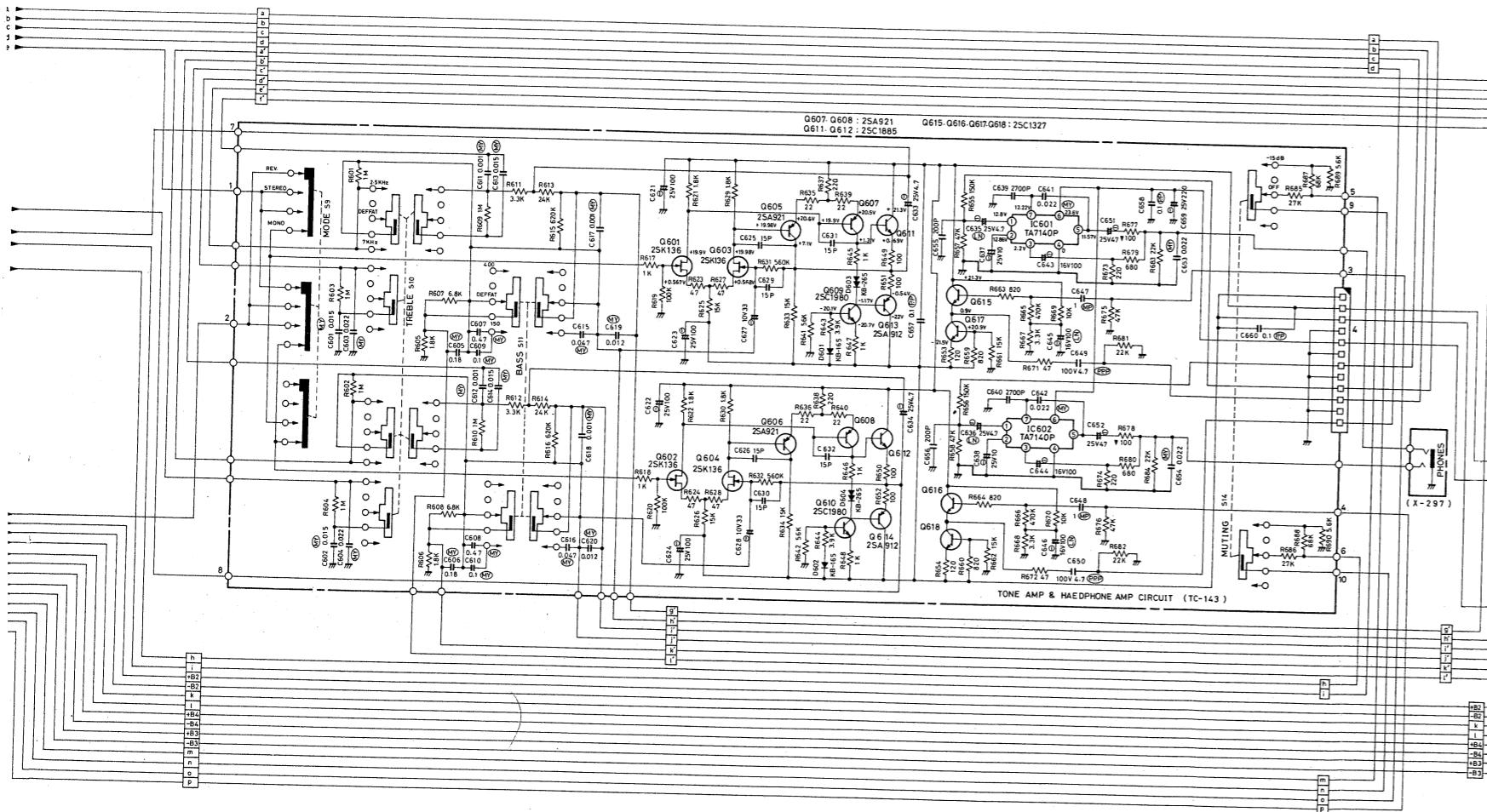
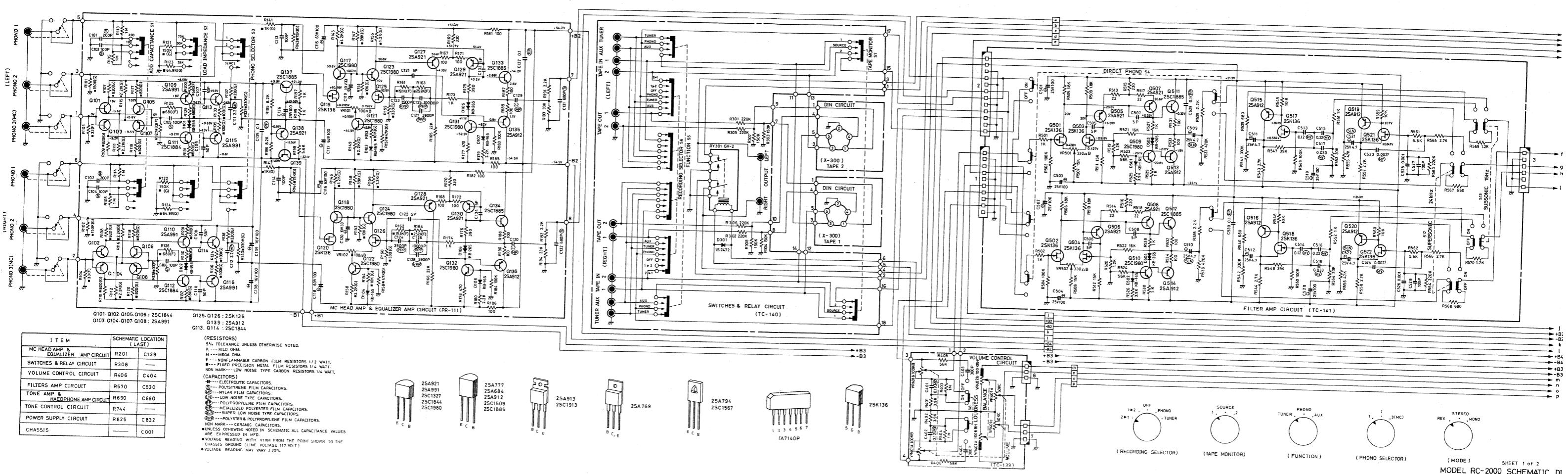
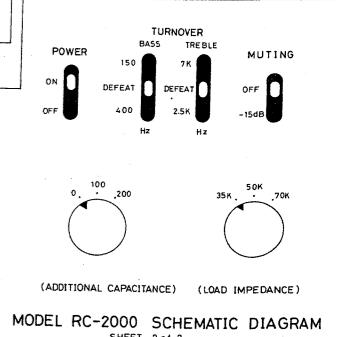
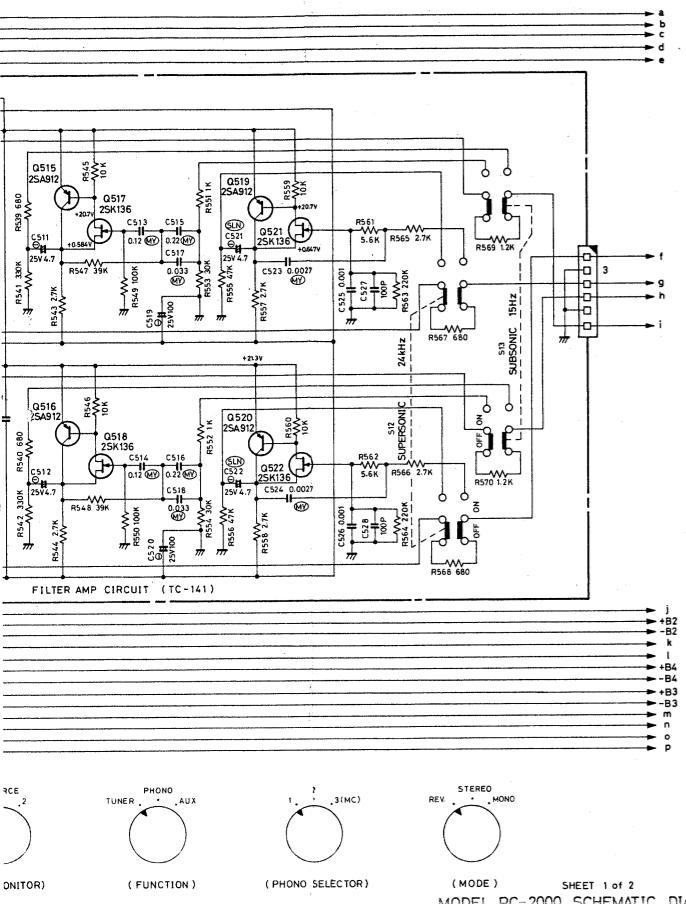


TABLE OF FUSE VALUE		STANDARD TYPE	EUROPEAN TYPE
		100V or 117V	220V or 240V
F901	1A (long)	0.5A (long)	500mA(T (mini)
F902	0.5A (long)	0.5A (long)	500mA (mini)
F903	0.5A (long)	0.5A (long)	500mA (mini)
F904	0.5A (long)	0.5A (long)	500mA(T (mini)
F905	0.5A (long)	0.5A (long)	500mA(T (mini)



# Circuit Board Diagrams / Bestückungspläne / Diagrammes des plaquettes de circuits imprimés

## Filters Amp Circuit Filterverstärker Circuit de l'ampli des filtres



# Board Diagrams / Bestückungspläne / Diagrammes des plaquettes de circuits imprimés

## Filterverstärker Circuit de l'ampli des filtres

